REMARKS

Claims 21-25 are pending, though the office action mistakenly indicates that claims 21-31 are pending.

Claims 21-25 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Particularly, the examiner asserts that the feature, "such that a current in said first pair of display electrodes flows in the opposite direction from a current in said second pair of display electrodes" is not mentioned in the specification. Applicants respectfully traverse the rejection for several reasons.

As to claims 21-22 and 24-25, Applicants respectfully traverse because FIGs. 4 and 7, and the specification (for example, page 38, lines 15-20; page 39, lines 2-5; and page 40, lines 6-8 and 14-15) adequately support the cited claim feature for § 112 purposes.

A pair of adjacent electrodes, such as X1 and Y1 in FIG. 7, constitutes a capacitor to which a charging current i10, shown by example in the previously-submitted reference figure, flows when a voltage is applied thereto, and from which a discharging current i11 flows when the voltage is released. When a voltage more than a firing voltage is applied between a pair of adjacent electrodes, inherently, a gas-discharge current, flows therebetween in a certain time. For example, as clearly shown in FIG. 7 of the present application, discharge time points (W, E, A, S) lag behind each applied voltage. As shown for convenience in the reference figure, the resulting current pairs, between X1 and Y1, and between X2 and Y2, are in the opposite direction.

The explanation and reference figure submitted by Applicants in previously-filed Amendment B were provided merely as a demonstration of an implicit and/or inherent disclosure. The reference figure was not "needed to present the limitations", as stated in the office action, but rather was a convenient mechanism to illustrate what should be apparent to one skilled in the art by review of the current specification and figures.

For at least these reasons, Applicants respectfully submit that claims 21-22 and 24-28 are supported by the present specification and drawings, and thus Applicants request reconsideration and withdrawal of the rejection. Claim 23 does not include the feature cited in the office action as a

basis for the 35 U.S.C. § 112, first paragraph rejection. For at least this reason, the rejection as applied to claim 23 is improper, and should be withdrawn.

Claims 22-23 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Particularly, the office action states an objection to the phrase "both of said sets", and it responds to Applicants' previous reply by suggesting that "having a set of first discharge sustaining pulses to each electrode in a pair does not automatically [mean] that there are two sets of discharge sustaining pulses".

Applicants have amended claims 22 and 23 to define, among other features, applying a set of first discharge sustaining pulses to each electrode, respectively, in a first pair of said display electrodes. The use of the term "respectively" is believed to clarify further that each of the pair of display electrodes receives at least a set of first discharge sustaining pulses. Applicants believe that the claim as previously submitted was clear on this point, and the present amendment is not intended to be a narrowing amendment.

Applicants have made similar non-narrowing amendments to claim 22 regarding the second sets of discharge sustaining pulses and have amended claim 23 similarly to claim 22. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 22-23.

Claims 21 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kanazawa in view of Hirayama. Applicants respectfully traverse the rejection as neither Kanazawa nor Hirayama, alone or in combination, discloses or suggests at least all of the features of claims 21 and 24.

The office action cites Hirayama for the feature, "wherein the flowing of current [is] in an opposite direction" (page 4, lines 8-9). Applicants respectfully traverse this statement for at least the reason that the cited portion of Hirayama (col. 4, lines 12-23) is directed to FIG. 2I (showing voltage), wherein a voltage falls at time t1 and rises at a separate time t2. Times t1 and t2 are different times for the same signal, applied to the same electrode. The cited portion of Hirayama states, in part, "the discharge current through the display panel 40 is directed at the opposite directions to each other at the time points τ_1 and τ_2 and normally these discharges in pairs are called one discharge."

Clearly, the cited portion of Hirayama does not indicate that current in a first pair of display electrodes flows in the opposite direction from a current in an adjacent second pair of electrodes as a result of first and second simultaneous discharge sustaining pulses to the first and second pair of electrodes, respectively. Additionally, this appears to be the only support for the rejection regarding the opposite current direction feature.

Further, in Hirayama there is no step of "discharging between each of Y-electrodes and another X-electrode" as stated in the office action. As shown in FIG. 17 or 12 of Kanazawa, an X-electrode on the other side is sufficiently apart from the Y-electrode in order to prevent a discharge therebetween.

Still further, the plasma display panel of Hirayama is a row and column electrode structure, and there is no parallel electrode structure for gas discharging therebetween. No suggestion has been provided in the office action as to how to combine Hirayama with the different structure of Kanazawa, nor is there any suggestion that such a combination would be successful to provide the claimed invention.

The office action cites the abstract of Hirayama as a motivation to combine teachings (to help improve the turn-on characteristics of a display). However, in the Hirayama abstract, this is a benefit of forcibly firing display cells at a predetermined period regardless of given display signals, and does not appear to be directed to the discharge current at times t1 and t2. Such motivation also does not provide a suggestion that one skilled in the art would find it obvious to combine features of different display structures. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 21 and 24.

Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kanazawa in view of Shinoda. Applicants respectfully traverse the rejection. The office action states that Shinoda (FIGs. 6 and 7) shows two electrodes (Y1 and X1) adjacent to each other and in two pairs are in the same phase. The cited specification portion, col. 6, lines 55-58, is directed to the voltage waveforms shown in FIG. 7. However, FIGs. 7e and 7f, specifically cited in the office action, do not show that the phase of pulses applied to electrode Y1 are the same as pulses applied to electrode X1.

In response to Applicants' previous arguments regarding Shinoda, the office action cites FIG. 6 to show that X2-Y1 and X2-Y2 have the same pulse. However, claim 23 defines, among other things, that a set of first discharge sustaining pulses applied to one electrode in a first pair of display electrodes and a set of second discharge sustaining pulses applied to an adjacent electrode in a second pair of display electrodes are in the same phase as each other. As shown in FIGs. 6 and 7(a)-7(d), Shinoda appears to teach away from this feature. FIGs. 7(a)-7(d) show the voltages applied to the display electrodes X1, X2, X3, and X4, while FIGs. 7(e)-7(f), cited in the office action, are composite waveforms applied across the respective electrode pairs (see col. 6, lines 62-67).

For at least these reasons, Applicants respectfully submit that claim 23 is allowable over the references of record, including Kanazawa, Hirayama, and Shinoda. Applicants thus respectfully request reconsideration and withdrawal of the rejection.

Claims 22 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kanazawa, Hirayama, and Shinoda. Applicants respectfully traverse the rejection for at least the reasons stated above with respect to independent claims 21 and 23, and for at least the additional reason that, in Shinoda, if sustain discharge arises in display cell K12, for example, the direction of discharge current between electrodes X1-Y1 is the same as the discharge current between electrodes X1-Y2. Thus, even if, for the sake of argument only, Shinoda could be cited to teach the phase features of claims 22 and 25, a combined structure would not include the current features of these claims. For at least this reason, Shinoda apparently cannot be combined with Kanazawa and Hirayama to teach all of the features of these claims, and without additional explanation, such a combination appears to be based on "picking and choosing" features of particular references, without motivation in the art to combine them. Thus, Applicants respectfully request reconsideration and withdrawal of the rejection.

For at least the foregoing reasons, Applicants believe that this case is in condition for allowance, which is respectfully requested. The Examiner should call Applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

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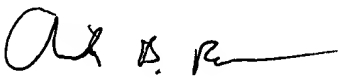
By: 

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